

## Precalc Warm Up # 7-5

1. Write an expression for:

$$\cot \left( \arcsin \left( -\frac{2x}{3} \right) \right)$$

2. Draw  $\theta$  in standard position, state the reference angle and find a coterminal angle.

$$\theta = -\frac{4\pi}{5}$$

Check your review WS answers.  
Talk over issues with your team.

1. a)  $x \approx 19.01 \text{ cm}$
- b)  $x \approx 55.99 \text{ cm}$
- c)  $x \approx 0.47 \text{ radians}$
- d)  $x \approx 12.01 \text{ cm}$
- e)  $x \approx 56.08^\circ$
- f)  $x \approx 52^\circ 55' 22.8''$

2. i)  $m\angle A = 72^\circ$
- ii)  $\approx 8.51 \text{ cm}$
- iii)  $A \approx 172 \text{ cm}^2$

$$3. \frac{1}{\sqrt{9x^2+1}}$$

$$\text{or } \frac{\sqrt{9x^2+1}}{9x^2+1}$$

$$4. -\frac{5}{3}$$

$$5. \approx (0.14, 0.99)$$

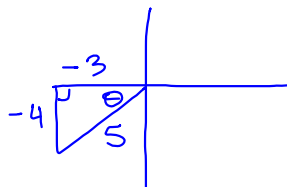
$$6. x = 18\sqrt{3} + 18$$

$$7. P = \frac{15\pi}{4} + 20 \text{ ft}$$

$$A = \frac{75\pi}{4} \text{ ft}^2$$

$$9. x \approx 1.72 \text{ m}$$

4)

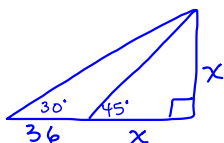


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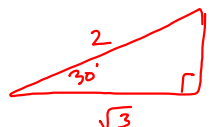
$$\frac{h}{a}$$

$$-\frac{5}{3}$$

6)



compare to:



$$\frac{x}{1} = \frac{x+36}{\sqrt{3}}$$

cross multiply

$$x\sqrt{3} = x + 36$$

get x terms on same side

$$x\sqrt{3} - x = 36$$

$$x(\sqrt{3} - 1) = 36$$

factor

$$\frac{x}{\sqrt{3} - 1} = \frac{36}{\sqrt{3} - 1}$$

$$x = \frac{36}{\sqrt{3} - 1} \cdot \frac{\sqrt{3} + 1}{\sqrt{3} + 1}$$

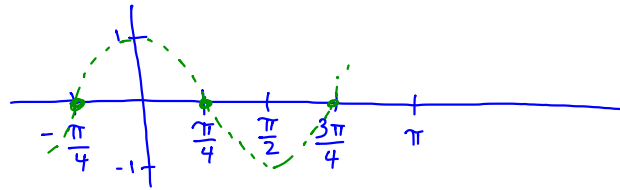
use the conjugate

$$x = \frac{36(\sqrt{3} + 1)}{3 - 1}$$

$$x = 18(\sqrt{3} + 1)$$

8)  $y = \csc 2(x + \frac{\pi}{4})$      $\text{Per} = \frac{2\pi}{2} = \pi$      $\text{Amp} = 1$

← left  $\frac{\pi}{4}$     "ghost"  $\sin \rightarrow$



Sketch  
1<sup>st</sup> cycle  
here.

Continue the  
pattern for another  
cycle.

★ Draw vertical asymptotes at the zeros of your "ghost" sine graph, then sketch your cosecant graph.

Last Practice for Monday's Group Event:

A cruise ship leaves Port at 10:00 am bearing N 22 E at 16 knots. At noon, an excited passenger leans a little too far over the railing to watch the dolphins swimming alongside the ship. No one on board saw her fall overboard, but one of the dolphins heads off bearing S 74 E to a marine biology lab anchored 5 nautical miles away. The dolphin communicates with its trainer who sends a small motor boat to pick up the girl and bring her to the lab. At what bearing should they take from the lab to get back to port and how far is it?

by Alternate Int  $\angle$ 's  $22^\circ$

Lab

Port

32

5

$d$

$74^\circ$

$22^\circ$

$16^\circ$

$x$

1) find  $d$  using law of cosines.  
(stone it!)

2)  $\Theta = 90 - x$   
find  $x$  from:

law of sines to get  $y$   
 $x = y - 16^\circ$

Answers:  
 $d \approx 32.9$  miles  
 $\approx S 30.7^\circ W$

HW: PC book p. 394

# 25, 29, 49, 60, 72

From tonight's HW:

60)  $h(t) = 3 \csc\left(2t + \frac{\pi}{4}\right)$

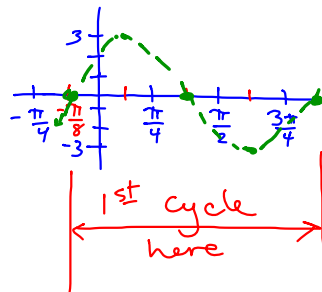
Amp = 3

Per =  $\pi$

Left  $\frac{\pi}{8}$

"ghost"

sin



• Draw vertical asymptotes at the zeros of your "ghost"

• Repeat pattern for a 2nd cycle

• draw csc between your vertical asymptotes.

72)

